program flow being immediately continued when the condition is satisfied and the program flow being stopped when the condition is not satisfied, until it is established that the condition has been satisfied, the priority of the checking for the condition being increased in comparison with the current task priority while waiting for the condition to be satisfied. When the condition has been satisfied, a defined program sequence is processed with high priority up to an explicit end, the old task priority being resumed after the explicit end of the program sequence.—

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IN THE CLAIMS:

Cancel claims 1-14.

Add the following new claims 15-28:

--15.   A method of operating a programmed industrial controller equipped with a runtime system for a production machine comprising the steps of

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checking for occurrence of a desired condition in the operation of the machine,

stopping the program flow of the machine operation while checking for the occurrence of said desired condition and waiting for said condition to occur,

increasing the priority of checking for the desired condition relative to the current task priority in the program flow, and

immediately continuing the program flow upon satisfaction of the condition.

16.   The method according to claim 15, wherein once the condition has been satisfied, the following program sequence is processed with high priority up to an explicit end, the old task priority being resumed after the explicit end of the program sequence.

17.   The method according to claim 15, wherein process signals and/or internal signals of the controller and/or variables from user programs are used for the formulation of the conditions.

18.   The method according to claim 15, wherein the conditions contain logical and/or arithmetic and/or any desired functional combinational operations.

19.   The method according to claim 15, wherein the user program for the operation of the controller is capable of responding in the manner set forth more than one such condition.

20.   The method according to claim 15, wherein there are provided for the controller, a plurality of user programs which operate in the manner set forth.

21.   The method as claimed according to claim 15, wherein the program for operating the controller is available as a customary programming-language construct.

22.   An industrial controller for carrying out the method according to claim 15, wherein the runtime system of the controller contains a running level model which has a plurality of running levels of different types with different priority, said running levels comprising:

a)   a group of levels with synchronously clocked levels, having at least one system level and at least one user level, the levels of this group of levels being capable of being prioritized with respect to one another;

b) a user level for system exceptions;

c) a time-controlled user level;

d) an event-controlled user level;

e)   a sequential user level; and

f) a cyclical user level; and wherein user levels of the group of levels a) are able to run synchronously in relation to one of the system levels of the group of levels a).

23. The industrial controller according to claim 22, wherein the basic clock of the running level model is derived from any one of an internal timer, an internal clock of a communication medium, an external device or a variable which belongs to the technological process of the machine.

24. The industrial controller according to claim 22, wherein the time-controlled user level, the event-controlled user level, the sequential running level, the cyclical background level and the user level for system exceptions are optional.

25. The industrial controller according to claim 22, wherein the synchronous levels are clocked in relation to the basic clock with a step-up and/or step-down ratio and/or in the ratio 1:1.

26. The industrial controller according to claim 22, wherein further prioritizing stratifications are provided within the running levels.

27. The industrial controller according to claim 22, wherein user tasks can optionally be run through during system running-up and/or during system running-down.

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28.   The industrial controller according to claim 22, wherein user

programs which, depending on the type of user level, are programmed in a cycle-

oriented or sequential manner can be loaded into the user levels.—

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